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Supply chain Conclusion & Project Summary

This project focused on analyzing supply chain data to identify patterns, trends, and improvement opportunities across multiple areas including sales performance, inventory management, logistics efficiency, and profitability.

By cleaning and preparing the data, we were able to:

- Highlight top-performing product types and SKUs
- Explore the relationship between pricing, availability, and sales
- Reveal inefficiencies in stock levels and supplier lead times
- Prepare the foundation for deeper analysis and forecasting

This analysis provides valuable insights to support data-driven decision-making and improve overall supply chain efficiency.



Data Overview:

The dataset contains **100** records with **24** columns, including product details, sales performance, supply chain metrics, and logistics data.

Data types: There are numeric fields (e.g., Price, Revenue generated), categorical fields (e.g., Product type, Supplier name), and text-based attributes (e.g., Inspection results).

Data Cleaning Steps 🧹

We performed data cleaning using Excel through this steps:-

1. Removed Extra Spaces from Column Names

- Stripped any leading/trailing spaces to ensure consistent column access.

2. Converted Columns to Correct Data Types

- Ensured numeric columns like Price, Revenue generated, manufacturing costs, etc., are all converted to proper numeric data types.
- This helps avoid errors during calculations and analysis.

3. Handled Missing Values

- Dropped rows that were missing **critical fields** such as Product type, SKU, Price, Revenue generated, or Stock levels.
- This ensured that the remaining data is complete and reliable for analysis.

4. Standardized Values

- In case there were inconsistent labels (e.g., "Skincare " vs. "Skincare"), those would be cleaned as well (stripped, capitalized, etc.)



Key Analysis Ideas

Products pricing and segmentation overview.

1. Which product should we reconsider its pricing to ensure increase its sales?.
2. which products need to have their production rate adjusted according to their sales rate?.
3. Which customer segment is most likely to contribute to increased sales if targeted in the next marketing campaign?

Supply Chain Efficiency

1. Which supplier is predicted to deliver the lowest defect rate with the shortest lead time in the upcoming cycle?
2. Which supplier is expected to become the most cost-efficient option if shipping costs increase by 10%?

Key Analysis Ideas

Logistics & Shipping Performance

1. Which shipping carrier is the most cost-effective?
2. When we need the cost-effective (carrier, (transportation mode) for specific products due to the budget issue , what should we choose?
3. What are the most and least cost-effective shipping routes?
4. What transportation mode is expected to offer the best balance between cost and delivery speed for skincare products?

Cost & Profitability Analysis

1. Which products have the highest and lowest profit margins?
2. How do manufacturing costs correlate with product price and revenue?
3. Are there any high-defect rate products affecting overall profitability?
4. We have limited storage space in the warehouse. Which products should we choose from skin care or hair care to achieve the highest profit?
5. What product should have its production rate increased to meet expected future demand based on current sales trends?

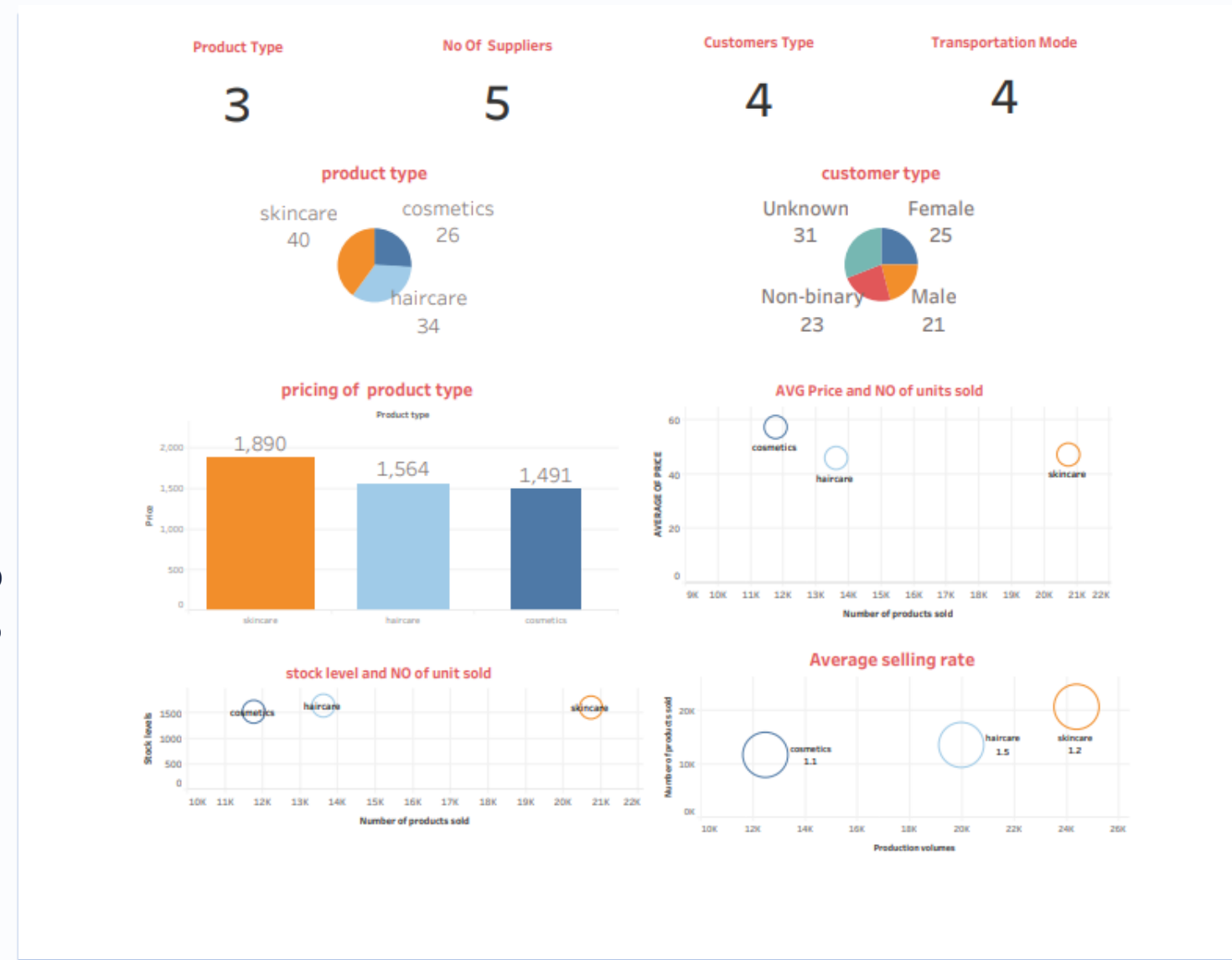
Dashboards Overview



Dashboards Overview

Products pricing and segmentation overview.

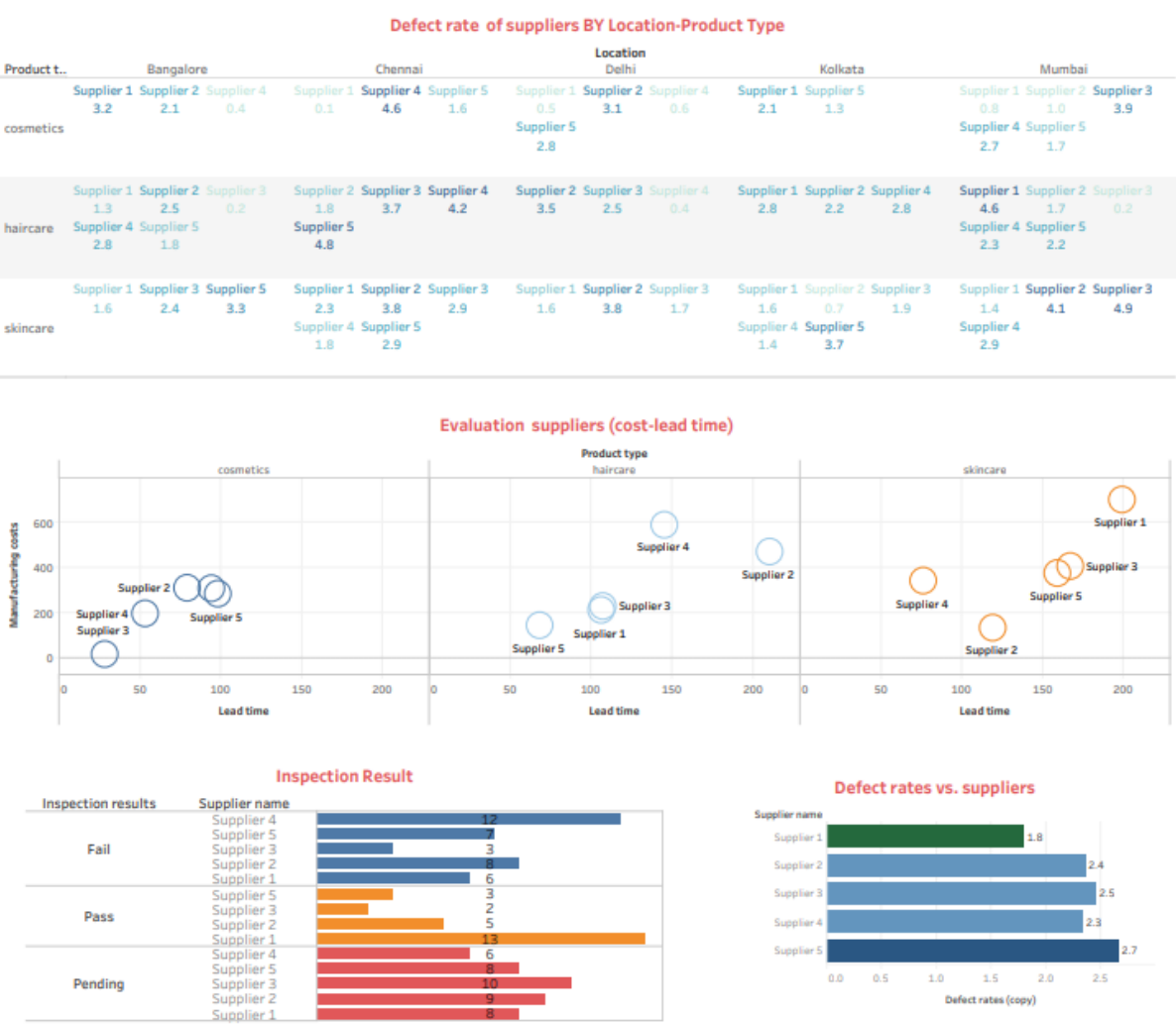
1. If we have a plan to reprice products, which product should we reconsider its pricing to ensure increase its sales?
2. Based on the sales attached in the sheet, which products need to have their production rate adjusted according to their sales rate?



Dashboards Overview

Supply Chain Efficiency

1. If we want to select a supplier for a specific product in a certain area based on the low defect rate, which supplier should we choose?
2. Which supplier is predicted to deliver the lowest defect rate with the shortest lead time in the upcoming cycle?

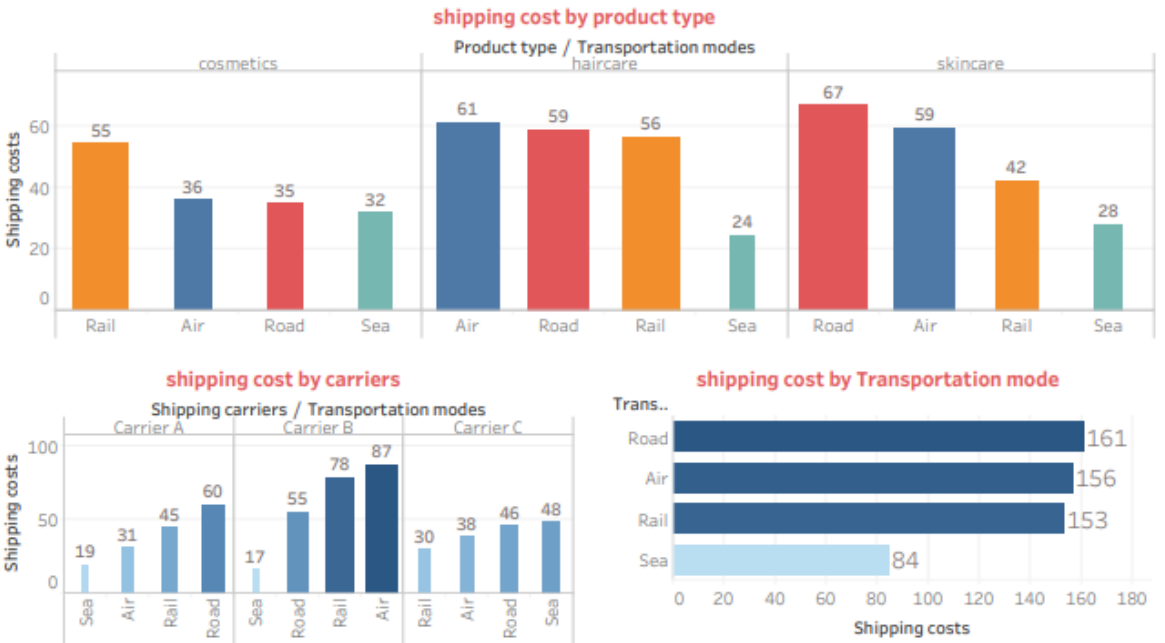


Dashboards Overview

Logistics & Shipping Performance

1. When we need the fastest carrier for hair care products in Delhi due to an urgent order, what should we choose?
2. When we need the cost-effective (carrier, (transportation mode) for specific products due to the budget issue, what should we choose?

Product t..	SHIPPING TIME of CARRIERS BY Location-Product Type											
	Bangalore			Chennai			Location Delhi			Kolkata		
	Carrier A	Carrier B	Carrier C	Carrier A	Carrier B	Carrier C	Carrier A	Carrier B	Carrier C	Carrier A	Carrier B	Carrier C
cosmetics	15	1		11	20		10	16	20	7	22	
haircare	11	28	8	20	20	1	10	6		14	14	18
skincare	13	15	4	17	19	12	15	6	6	21	17	36



Dashboards Overview

Cost & Profitability Analysis

1. We have limited storage space in the warehouse. Which products should we choose from skin care or hair care to achieve the highest profit?
2. We have a marketing campaign with a small budget. Which customer distribution should we choose for the campaign? ,And which type of products should we focus on?
3. Which of our suppliers can achieve the highest profitability with the lowest possible manufacturing and delivery costs?





Let's take a deeper look on our
dashboards&insights on **TABLEAU**.



Thank you!